REMARKS

Claims 1-14, 17, 18, and 21-24 are pending, of which claim 1 is an independent method claim and claim 21 is a corresponding independent computer program product claim. As indicated above, independent claims 1 and 21 have been amended by this paper.

The Office Action rejected independent claims 1 and 21 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,615,340 to Dai et al. ("*Dai*") in view of U.S. Patent No. 6,480,488 to Huang ("*Huang*") and further in view of U.S. Patent No. 5,809,252 to Beighe et al. ("*Beighe*"). The remaining claims were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Dai*, *Huang*, and *Beighe* in view of U.S. Patent No. 5,724,356 to Parameswaran Nair et al. ("*Nair*").[1]

Applicants' invention, as claimed for example in independent method claim 1, is directed to automatically registering a new communication device with a cable modem, in such a way as to enable delivery of incoming data packets over a cable network to the communication device only when the incoming data packets include destination addresses that are associated with the registered communication device. The cable modem is part of a system with customer premises equipment that hosts the cable modem. This customer premises equipment includes a media access controller that represents a data link layer of a cable modem protocol stack. The cable modem represents a physical layer of the cable modem protocol stack.

The recited method includes preparing, by the media access controller, an outgoing data packet from a communication device such that the outgoing data packet is compatible with a hardware abstraction interface layer between the data link layer and the physical layer of the cable modem protocol stack, the hardware abstraction interface layer comprising an application programming interface configured for separating hardware of the cable modem from software of the cable modem protocol stack; transmitting the outgoing data packet from the media access controller to an interface of the hardware abstraction interface layer; and sending, by the interface, the outgoing data packet to the cable modem. The cable modem receives the outgoing data packet, which includes an address that identifies the device, from the communication device through the interface of the hardware abstraction interface layer, and compares the device

[1]Although the prior art status of the cited art is not being challenged at this time, Applicants reserve the right to do so in the future. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status or asserted teachings of the cited art.

address with a list of addresses. If the address is not on the list, it is added, such that the communication device is automatically registered with the cable modem.

When an incoming data packet is received from the cable network, the destination address of the incoming data packet also is compared to list of addresses. The incoming data packet is transmitted, through the interface of the hardware abstraction interface layer, to any of one or more communication devices that have been registered with the cable modem and that are associated with the destination address as determined by the list of addresses, but filtered when the destination address is not associated with any of the one or more communication devices that have been registered with the cable modem, as determined by the list of addresses.

As noted in Applicants' previous response, *Dai* discloses a network interfacing apparatus (e.g., a bridge). See col. 1, ll. 49. When an incoming packet is received, the packet's destination address is compared to addresses stored in a source address table, and if found, a controller broadcasts the packet to the working ports of the apparatus. Col. 4, ll. 16-29. If no matching address is found in the source address table, the controller prevents the packet from being sent to the working ports to avoid unnecessary signal traffic for the working ports. Col. 4, ll. 29-34. Similarly, when an outgoing packet is received, the packet's outgoing address is compared to the source address table, and if found, the controller knows that the packet is destined for one of the working ports and allows the packet to be repeated on the working ports, rather than the network, thereby preventing unnecessary network traffic. Col. 4, ll. 35-52. If the outgoing address does not match any of the address in the source address table, it means that the outgoing information packet is destined for an external node (i.e., a node on the network), and the controller sends the packet to the network via an attachment port. Col. 4, ll. 52-58. Both the incoming packet controller 38 and the outgoing packet controller 42 share a single source address table 40. Col. 4, ll. 5-59; Figure 1.

Huang discloses sorting and transmitting data packets over a switched fabric using a port controller that includes a router. Col. 3, ll. 57-62; col. 1, ll. 62-67; col. 2, ll. 10-14; col. 4, ll. 16-20; Figures 3 & 5. For received packets (destination address, source address and data), the router compares the packet's destination address with addresses stored in an address table, and if the destination address can be found, a port number corresponding to the destination address is retrieved. Col. 4, ll. 20-25. The router transmits the packet to the switched fabric, which decodes the destination port number to get a destination channel and then transmits the packet

from the destination channel to a specific port of a specific port controller. Col. 4, ll. 25-32. If the data is a broadcast frame or if the destination address cannot be located in the address table, the router broadcasts the frame to every terminal of the LAN via an intercom channel. Col. 4, ll. 32-39.

If the source address cannot be located in the address table, the source is deemed a new source and the address table is refreshed to include the source address. Col. 4, ll. 39-45. According to *Huang*, in prior art implementations data from a source address that cannot be located in the address table is broadcast by the port controller so that all port controllers can receive the new address, but broadcasting the data (as opposed to simply the source address) unnecessarily reduces network speed. Col. 4, ll. 45-63. *Huang's* solution is to assemble a new address learning frame (NALF), with only the new source address, to the other port controllers in order to refresh their address tables. Col. 4, l. 63 – col. 5, l. 18. For unicast data frames, the data is transmitted only to a specific port of a specific controller based on the destination address. Col. 5, ll. 18-22. As a result, the conventional address table refreshing operation of broadcasting the whole data packet (destination address, source address and data) via the intercom channel to the address table of every port controller in the LAN can be avoided. Col 5, ll. 22-30. Each port controller 21 has a single address table (212 and 312) for both source and destination addresses. Col. 1, l. 62 – col. 2, l. 59; Col. 4, l. 1 – col. 5, l. 33; Figure 3 & 5.

Beighe discloses a cable modem interface unit 90 layer that is coupled to a network driver interface layer 70 and to cable modem 16. Col. 4, ll. 30-34; Figure 3. The interface unit includes a control packet filter 50, a protocol handler 55, and a receive unit 57. *Id.* Each received packet is passed to control packet filter 50 which determines if the packet is a control packet or a data packet. Col. 4, ll. 41-43. The control packet filter passes data packets to the receive unit 57, which in turn passes the data packet to the network driver interface layer 70, at which time network driver interface layer 70 generates an acknowledgement signal. Col. 4, ll. 43-45 & 48-51. The control packet filter passes control packets to the protocol handler 55 for processing. Col. 4, ll. 45-47 & col. 4, l. 66 – col 5, l. 1. Accordingly, filtering in *Beighe* relates to distinguishing between data packets and control packets, as opposed to dropping packets having a destination address that is not within a particular network segment.

Nair is directed to a programmable filter for controlling which network users can access a network bridge and for restricting local packet traffic from passing over the bridge to another

network. (Col. 2, ll. 16-18; Col. 21, l. 45-Col. 28, l. 10). *Nair* also discloses a receiving function for the bridge. (Col. 26, ll. 42-45).

However, the claimed interaction relative to the hardware abstraction layer interface, which has been introduced into independent claims 1 and 21 by this paper, represents new subject matter that has not yet been considered. *See, e.g.,* Specification, p. 17, ll. 6-18. Moreover, Applicants respectfully submit that *Dai*, *Huang*, *Beighe*, and *Nair* fail to teach, suggest, or motivate the claimed interaction relative to the hardware abstraction layer interface.

Based on at least the foregoing reasons, therefore, Applicants respectfully submit that the cited prior art fails to anticipate or make obvious Applicants' invention, as claimed for example, in independent claims 1 and 21. Applicants note for the record that the remarks above render the remaining rejections of record for the independent and dependent claims moot, and thus addressing individual rejections or assertions with respect to the teachings of the cited art is unnecessary at the present time, but may be undertaken in the future if necessary or desirable, and Applicants reserve the right to do so. Accordingly, Applicants respectfully submit that the pending claims, 1-14, 17, 18, and 21-24, are in condition for allowance. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney.

Dated this 1st day of July, 2004.

Respectfully submitted,

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